CPC COOPERATIVE PATENT CLASSIFICATION

C03C CHEMICAL COMPOSITION OF GLASSES, GLAZES, OR VITREOUS ENAMELS; SURFACE TREATMENT OF GLASS; SURFACE TREATMENT OF FIBRES OR FILAMENTS FROM GLASS, MINERALS OR SLAGS; JOINING GLASS TO GLASS OR OTHER MATERIALS

NOTE

This subclass covers compositions of polycristalline fibres

This subclass does not cover the preparation of single-cristal fibres, which is covered by subclass C30B

WARNING

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:

C03C 6/00 covered by C03C 1/00
C03C 10/02-C03C 10/14 covered by C03C 10/00
C03C 13/02 covered by C03C 13/00
C03C 27/12 covered by B32B 17/00

Chemical composition of glasses, glazes, or vitreous enamels

NOTE

In groups C03C 1/00 to C03C 14/00, in the absence of an indication to the contrary, classification is made in the last appropriate place.

C03C 1/00 Ingredients generally applicable to manufacture of glasses, glazes, or vitreous enamels

C03C 1/002 . {Use of waste materials, e.g. slags}

C03C 1/004 . {Refining agents (refining C03B 5/225)}

C03C 1/006 . {to produce glass through wet route}

C03C 1/008 . . {for the production of films or coatings}

C03C 1/02 . Pretreated ingredients

C03C 1/022 . . {Purification of silica sand or other minerals}

C03C 1/024 . . {Chemical treatment of cullet or glass fibres}

C03C 1/026 . . {Pelletisation or prereacting of powdered raw materials (apparatus or methods C03B 1/02)}

C03C 1/028 . . {Ingredients allowing introduction of lead or other easily volatile or dusty compounds}

C03C 1/04 . Opacifiers, e.g. fluorides or phosphates; Pigments

C03C 1/06 . . to produce non-uniformly pigmented, e.g. speckled, marbled, or veined products

C03C 1/08 . to produce crackled effects

C03C 1/10 . to produce uniformly-coloured transparent products

C03C 1/105 . . {by the addition of colorants to the forehearth of the glass melting furnace}

C03C 3/00 Glass compositions

C03C 3/04 . containing silica

NOTE

If silica is specified as being present in a percent range covered by two of the groups C03C 3/06, C03C 3/062 or C03C 3/076, classification is made in both groups. If the range is covered by the three groups, classification is made in group C03C 3/04 itself.

C03C 3/045 . . {Silicon oxycarbide, oxynitride or oxycarbonitride glasses}

C03C 3/06 . . with more than 90% silica by weight, e.g. quartz {(C03C 3/045 takes precedence)}

C03C 3/061 . . . {by leaching a soluble phase and consolidating}

C03C 3/062 . . with less than 40% silica by weight

C03C 3/064 . . . containing boron

C03C 3/066 . . . . containing zinc

C03C 3/068 . . . . containing rare earths

C03C 3/07 . . . containing lead

C03C 3/072 . . . . containing boron

C03C 3/074 . . . . . containing zinc

C03C 3/0745 . . . . . {containing more than 50% lead oxide, by weight}

C03C 3/076 . . with 40% to 90% silica, by weight {(C03C 3/045 takes precedence)}

C03C 3/078 . . . containing an oxide of a divalent metal, e.g. an oxide of zinc

C03C 3/083 . . . containing aluminium oxide or an iron compound

C03C 3/085 . . . . containing an oxide of a divalent metal

C03C 3/087 . . . . . containing calcium oxide, e.g. common sheet or container glass

C03C 3/089 . . . containing boron

C03C 3/091 . . . . containing aluminium

C03C 3/093 . . . . . containing zinc or zirconium

C03C 3/095 . . . containing rare earths

C03C 3/097 . . . containing phosphorus, niobium or tantalum

C03C 3/102 . . . containing lead

C03C 3/105 . . . . containing aluminium

C03C 3/108 . . . . containing boron

C03C 3/11 . . . containing halogen or nitrogen

C03C 3/111 .... {containing nitrogen}
C03C 3/112 .... containing fluorine
C03C 3/115 ..... containing boron
C03C 3/118 ..... containing aluminium

C03C 3/12 . Silica-free oxide glass compositions
C03C 3/122 .. {containing oxides of As, Sb, Bi, Mo, W, V, Te as glass formers}
C03C 3/125 .. {containing aluminium as glass former}
C03C 3/127 .. {containing TiO2 as glass former}
C03C 3/14 .. containing boron
C03C 3/142 ... {containing lead}
C03C 3/145 ... containing aluminium or beryllium
C03C 3/15 ... containing rare earths
C03C 3/155 .... containing zirconium, titanium, tantalum or niobium
C03C 3/16 .. containing phosphorus
C03C 3/17 ... containing aluminium or beryllium
C03C 3/19 ... containing boron
C03C 3/21 ... containing titanium, zirconium, vanadium, tungsten or molybdenum
C03C 3/23 .. containing halogen and at least one oxide, e.g. oxide of boron
C03C 3/247 ... containing fluorine and phosphorus
C03C 3/253 .. containing germanium

C03C 3/32 . Non-oxide glass compositions, e.g. binary or ternary halides, sulfides or nitrides of germanium, selenium or tellurium
C03C 3/321 .. {Chalcogenide glasses, e.g. containing S, Se, Te}
C03C 3/323 ... {containing halogen, e.g. chalcohalide glasses}
C03C 3/325 .. {Fluoride glasses}
C03C 3/326 ... {containing beryllium}
C03C 3/328 .. {Nitride glasses}

C03C 4/00 **Compositions for glass with special properties**

NOTE

When classifying in group C03C 4/00, classification is also made in the appropriate groups of group C03C 3/00 according to the glass composition.

C03C 4/0007 . {for biologically-compatible glass}
C03C 4/0014 .. { Biodegradable glass}
C03C 4/0021 .. { for dental use}

C03C 4/0028 . {for crystal glass, e.g. lead-free crystal glass}

C03C 4/0035 . {for soluble glass for controlled release of a compound incorporated in said glass}

C03C 4/0042 . { for glass comprising or including particular isotopes}

C03C 4/005 . {for opaline glass}

C03C 4/0057 . {for ultrasonic delay lines glass}

C03C 4/0064 . { for self-destructing glass (C03C 4/0014 takes precedence)}

C03C 4/0071 . {for laserable glass}

C03C 4/0078 . {for glass for dosimeters}

C03C 4/0085 . {for UV-transmitting glass}

C03C 4/0092 . { for glass with improved high visible transmittance, e.g. extra-clear glass}

C03C 4/02 . for coloured glass

C03C 4/04 . for photosensitive glass

C03C 4/06 . . for phototropic or photochromic glass

C03C 4/065 . . . {for silver-halide free photochromic glass}

C03C 4/08 . for glass selectively absorbing radiation of specified wave lengths

C03C 4/082 . . {for infra-red absorbing glass}

C03C 4/085 . . {for ultra-violet absorbing glass}

C03C 4/087 . . {for X-rays absorbing glass}

C03C 4/10 . for infra-red transmitting glass

C03C 4/12 . for luminescent glass; for fluorescent glass

C03C 4/14 . for electro-conductive glass

C03C 4/16 . for dielectric glass

C03C 4/18 . for ion-sensitive glass

C03C 4/20 . for chemical resistant glass

C03C 8/00 **Enamels; Glazes** (cold glazes for ceramics {C04B 41/48}); **Fusion seal compositions being frit compositions having non-frit additions**

C03C 8/02 . Frit compositions, i.e. in a powdered or comminuted form

C03C 8/04 . . containing zinc

C03C 8/06 . . containing halogen

C03C 8/08 . . containing phosphorus

C03C 8/10 . . containing lead

C03C 8/12 . . . containing titanium or zirconium

C03C 8/14 . Glass frit mixtures having non-frit additions, e.g. opacifiers, colorants, mill-additions
C03C 8/16 . . with vehicle or suspending agents, e.g. slip
C03C 8/18 . . containing free metals
C03C 8/20 . . containing titanium compounds; containing zirconium compounds

C03C 8/22 . containing two or more distinct frits having different compositions

C03C 8/24 . Fusion seal compositions being frit compositions having non-frit additions, i.e. for use as seals between dissimilar materials, e.g. glass and metal; Glass solders
C03C 8/245 . . {containing more than 50% lead oxide, by weight}

C03C 10/00 **Devitrified glass ceramics, i.e. glass ceramics having a crystalline phase dispersed in a glassy phase and constituting at least 50% by weight of the total composition**

C03C 10/0009 . {containing silica as main constituent}

C03C 10/0018 . {containing SiO2, Al2O3 and monovalent metal oxide as main constituents}
C03C 10/0027 . . {containing SiO2, Al2O3, Li2O as main constituents}

C03C 10/0036 . {containing SiO2, Al2O3 and a divalent metal oxide as main constituents}
C03C 10/0045 . . {containing SiO2, Al2O3 and MgO as main constituents}

C03C 10/0054 . {containing PbO, SnO2, B2O3}

C03C 10/0063 . {containing waste materials, e.g. slags}

C03C 10/0072 . {having a ferro-electric crystal phase}

C03C 10/0081 . {having a magnetic crystal phase}

C03C 10/009 . {having a superconducting crystal phase}

C03C 10/16 . Halogen containing crystalline phase

C03C 11/00 **Multi-cellular glass;** {Porous or hollow glass or glass particles}

C03C 11/002 . {Hollow glass particles}

C03C 11/005 . {obtained by leaching after a phase separation step}

C03C 11/007 . {Foam glass, e.g. obtained by incorporating a blowing agent and heating}

C03C 12/00 **Powdered glass** (C03C 8/02 takes precedence)**; Bead compositions**

C03C 12/02 . Reflective beads

C03C 13/00 **Fibre or filament compositions** (manufacture of fibres or filaments C03B 37/00)

C03C 13/001 . {Alkali-resistant fibres}
C03C 13/002 . . {containing zirconium}

C03C 13/003 . {Conducting or semi-conducting fibres}

C03C 13/005 . {obtained by leaching of a soluble phase and consolidation}

C03C 13/006 . {Glass-ceramics fibres}
C03C 13/007 . . {containing zirconium}

C03C 13/008 . {Polycrystalline optical fibres}

C03C 13/04 . Fibre optics, e.g. core and clad fibre compositions (light guides G02B 6/00)
C03C 13/041 . . {Non-oxide glass compositions}
C03C 13/042 . . . {Fluoride glass compositions}
C03C 13/043 . . . {Chalcogenide glass compositions}
C03C 13/044 . . . . {containing halogen, e.g. chalcohalide glass compositions}
C03C 13/045 . . {Silica-containing oxide glass compositions}
C03C 13/046 . . . {Multicomponent glass compositions}
C03C 13/047 . . . {containing deuterium}
C03C 13/048 . . {Silica-free oxide glass compositions}

C03C 13/06 . Mineral fibres, e.g. slag wool, mineral wool, rock wool

C03C 14/00 **Glass compositions containing a non-glass component, e.g. compositions containing fibres, filaments, whiskers, platelets, or the like, dispersed in a glass matrix** (devitrified glass ceramics C03C 10/00)

C03C 14/002 . {the non-glass component being in the form of fibres, filaments, yarns, felts or woven material}

C03C 14/004 . {the non-glass component being in the form of particles or flakes}

C03C 14/006 . {the non-glass component being in the form of microcrystallites, e.g. of optically or electrically active material}

C03C 14/008 . {the non-glass component being in molecular form}

Surface treatment of glass; Surface treatment of fibres or filaments from glass, minerals or slag

C03C 15/00 **Surface treatment of glass , not in the form of fibres or filaments, by etching** (etching or surface-brightening compositions, in general C09K 13/00)

C03C 15/02 . for making a smooth surface
C03C 15/025 . . {for polishing crystal glass, i.e. lead glass}

C03C 17/00		**Surface treatment of glass, not in the form of fibres or filaments, by coating** (optical coatings of optical elements G02B 1/10)
C03C 17/001	.	{General methods for coating; Devices therefor}
C03C 17/002	. .	{for flat glass, e.g. float glass}
C03C 17/003	. .	{for hollow ware, e.g. containers}
C03C 17/004	. . .	{ Coating the inside}
C03C 17/005	. . .	{ Coating the outside}
C03C 17/006	.	{with materials of composite character}
C03C 17/007	. .	{containing a dispersed phase, e.g. particles, fibres or flakes, in a continuous phase}
C03C 17/008	. .	{comprising a mixture of materials covered by two or more of the groups C03C 17/02, C03C 17/06, C03C 17/22 and C03C 17/28}
C03C 17/009	. . .	{Mixtures of organic and inorganic materials, e.g. ormosils and ormocers}
C03C 17/02	.	with glass (C03C 17/34, C03C 17/44 take precedence)
C03C 17/04	. .	by fritting glass powder
C03C 17/06	.	with metals (C03C 17/34, C03C 17/44 take precedence)
C03C 17/09	. .	by deposition from the vapour phase
C03C 17/10	. .	by deposition from the liquid phase
C03C 17/22	.	with other inorganic material (C03C 17/34, C03C 17/44 take precedence)
C03C 17/225	. .	{Nitrides}
C03C 17/23	. .	Oxides (C03C 17/02 takes precedence)
C03C 17/245	. . .	by deposition from the vapour phase
C03C 17/2453	. . . .	{Coating containing SnO2}
C03C 17/2456	. . . .	{Coating containing TiO2}
C03C 17/25	. . .	by deposition from the liquid phase
C03C 17/253	. . . .	{Coating containing SnO2}
C03C 17/256	. . . .	{Coating containing TiO2}
C03C 17/27	. . .	by oxidation of a coating previously applied
C03C 17/28	.	with organic material (C03C 17/34, C03C 17/44 take precedence)
C03C 17/30	. .	with silicon-containing compounds
C03C 17/32	. .	with synthetic or natural resins (C03C 17/30 takes precedence)
C03C 17/322	. . .	{Polyurethanes or polyisocyanates}
C03C 17/324	. . .	{Polyesters}
C03C 17/326	. . .	{Epoxy resins}
C03C 17/328	. . .	{Polyolefins}
C03C 17/34	.	with at least two coatings having different compositions (C03C 17/44 takes precedence)

C03C 17/3405	..	{with at least two coatings of organic materials (C03C 17/36, C03C 17/42 take precedence)}
C03C 17/3411	..	{with at least two coatings of inorganic materials (C03C 17/36, C03C 17/42 take precedence)}
C03C 17/3417	...	{all coatings being oxide coatings}
C03C 17/3423	...	{at least one of the coatings comprising a suboxide}
C03C 17/3429	...	{at least one of the coatings being a non-oxide coating}
C03C 17/3435	....	{comprising a nitride, oxynitride, boronitride or carbonitride}
C03C 17/3441	....	{comprising carbon, a carbide or oxycarbide}
C03C 17/3447	....	{comprising a halide}
C03C 17/3452	.....	{comprising a fluoride}
C03C 17/3458	.....	{comprising a chloride}
C03C 17/3464	....	{comprising a chalcogenide}
C03C 17/347	.....	{comprising a sulfide or oxysulfide}
C03C 17/3476	.....	{comprising a selenide or telluride}
C03C 17/3482	....	{comprising silicon, hydrogenated silicon or a silicide}
C03C 17/3488	....	{comprising a boride or phosphide}
C03C 17/3494	....	{comprising other salts, e.g. sulfate, phosphate}
C03C 17/36	..	at least one coating being a metal
C03C 17/3602	...	{ the metal being present as a layer}
C03C 17/3605	....	{ Coatings of the type glass/metal/inorganic compound }
C03C 17/3607	....	{ Coatings of the type glass/inorganic compound/metal }
C03C 17/361	....	{ Coatings of the type glass/metal/inorganic compound/metal/inorganic compound/other}
C03C 17/3613	....	{ Coatings of type glass/inorganic compound/metal/inorganic compound/metal/other }
C03C 17/3615	....	{ Coatings of the type glass/metal/other inorganic layers, at least one layer being non-metallic}
C03C 17/3618	....	{ Coatings of type glass/inorganic compound/other inorganic layers, at least one layer being metallic }
C03C 17/3621	....	{ one layer at least containing a fluoride }
C03C 17/3623	....	{ one layer at least containing a chloride, bromide or iodide }
C03C 17/3626	....	{ one layer at least containing a nitride, oxynitride, boronitride or carbonitride }
C03C 17/3628	....	{ one layer at least containing a sulfide }
C03C 17/3631	....	{ one layer at least containing a selenide or telluride }
C03C 17/3634	....	{ one layer at least containing carbon, a carbide or oxycarbide }
C03C 17/3636	....	{ one layer at least containing silicon, hydrogenated silicon or a silicide }
C03C 17/3639	....	{ Multilayers containing at least two functional metal layers }
C03C 17/3642	....	{ the multilayer coating containing a metal layer }
C03C 17/3644	....	{ the metal being silver }
C03C 17/3647	....	{ in combination with other metals, silver being more than 50% }
C03C 17/3649	....	{ made of metals other than silver }
C03C 17/3652	....	{ the coating stack containing at least one sacrificial layer to protect the

metal from oxidation }

C03C 17/3655 .... { the multilayer coating containing at least one conducting layer }

C03C 17/3657 .... { the multilayer coating having optical properties }

C03C 17/366 ..... { Low-emissivity or solar control coatings }

C03C 17/3663 ..... { specially adapted for use as mirrors }

C03C 17/3665 ..... { specially adapted for use as photomask}

C03C 17/3668 .... { the multilayer coating having electrical properties }

C03C 17/3671 ..... { specially adapted for use as electrodes }

C03C 17/3673 ..... { specially adapted for use in heating devices for rear window of vehicles}

C03C 17/3676 ..... { specially adapted for use as electromagnetic shield}

C03C 17/3678 ..... { specially adapted for use in solar cells }

C03C 17/3681 .... { the multilayer coating being used in glazing, e.g. windows or windscreens }

C03C 17/3684 .... { the multilayer coating being used for decoration purposes }

C03C 17/3686 .... { the multilayer coating being used for ovens }

C03C 17/3689 .... { one oxide layer being obtained by oxidation of a metallic layer }

C03C 17/3692 .... { one metallic layer being obtained by reduction of an oxide layer }

C03C 17/3694 .... { one layer having a composition gradient through its thickness }

C03C 17/3697 .... { one metallic layer at least being obtained by electroless plating}

C03C 17/38 ... at least one coating being a coating of an organic material

C03C 17/40 ... all coatings being metal coatings

C03C 17/42 .. at least one coating of an organic material and at least one non-metal coating

C03C 17/44 . Lustring

C03C 19/00 **Surface treatment of glass, not in the form of fibres or filaments, by mechanical means** (sand-blasting, grinding, or polishing glass B24)

C03C 21/00 **Treatment of glass, not in the form of fibres or filaments, by diffusing ions or metals in the surface**

C03C 21/001 . {in liquid phase, e.g. molten salts, solutions}

C03C 21/002 .. {to perform ion-exchange between alkali ions (C03C 21/005 takes precedence)}

C03C 21/003 ... {under application of an electrical potential difference}

C03C 21/005 .. {to introduce in the glass such metals or metallic ions as Ag, Cu}

C03C 21/006 .. {to perform an exchange of the type Xn+ ----> nH+}

C03C 21/007 . {in gaseous phase}

C03C 21/008 . {in solid phase, e.g. using pastes, powders}

C03C 23/00 **Other surface treatment of glass not in the form of fibres or filaments**

C03C 23/0005 . {by irradiation}

C03C 23/001 .. {by infra-red light}

C03C 23/0015 . . {by visible light}
C03C 23/002 . . {by ultra-violet light}
C03C 23/0025 . . {by a laser beam}
C03C 23/003 . . {by X-rays}
C03C 23/0035 . . {by gamma-rays}
C03C 23/004 . . {by electrons, protons or alpha-particles}
C03C 23/0045 . . {by neutrons}
C03C 23/005 . . {by atoms}
C03C 23/0055 . . {by ion implantation}
C03C 23/006 . . {by plasma or corona discharge}
C03C 23/0065 . . {by microwave radiation}

C03C 23/007 . {by thermal treatment}

C03C 23/0075 . {Cleaning of glass (specially adapted to plate glass B08B 11/00)}

C03C 23/008 . {comprising a lixiviation step}

C03C 23/0085 . {Drying; Dehydroxylation}

C03C 23/009 . { Poling glass}

C03C 23/0095 . {Solution impregnating; Solution doping; Molecular stuffing, e.g. of porous glass (in manufacture of preforms C03B 37/012)}

C03C 25/00 **Surface treatment of fibres or filaments from glass, minerals, or slags** {(woven fabrics D03; non-woven fabrics D04; treatment of fabrics in general or non-chemical aspects of treatment of glass fabrics D06M)}

C03C 25/002 . {by thermal treatment}

C03C 25/005 . {by mechanical means}

C03C 25/007 . { by solution impregnating; solution doping or molecular stuffing of porous glass}

C03C 25/10 . by coating
C03C 25/1005 . . {with materials of composite character}
C03C 25/101 . . . {containing particles, fibres or flakes, e.g. in a continuous phase}
C03C 25/1015 . . {with rubber latex-containing coatings}
C03C 25/102 . . {Coating with colouring agent-containing compositions, e.g. for obtaining coloured textiles}
C03C 25/1025 . . {Fibres used for reinforcing cement-based products}
C03C 25/103 . . . {with organic coatings}
C03C 25/1035 . . . {with inorganic coatings}
C03C 25/104 . . {to obtain optical fibres}
C03C 25/1045 . . . {with organic coatings or claddings}
C03C 25/105 . . . . {Organic claddings}

C03C 25/1055 .... {Organic coatings}
C03C 25/106 ..... {Single coatings}
C03C 25/1065 ..... {Multiple coatings}
C03C 25/107 ... {with inorganic coatings}
C03C 25/1075 .... {Carbon}
C03C 25/108 .... {Metals}
C03C 25/1085 .... { Multiple inorganic coatings}
C03C 25/109 ... { with at least one organic coating and at least one inorganic coating}
C03C 25/1095 .. { to obtain coated fabrics}
C03C 25/12 .. General methods for coating; Devices therefor
C03C 25/14 ... Spraying, e.g. pulverisation
C03C 25/143 .... {Pulverisation on continuous fibres}
C03C 25/146 .... {Pulverisation on fibres in suspension in a gaseous medium}
C03C 25/16 ... Dipping
C03C 25/18 ... using extrusion devices
C03C 25/20 ... Contacting the fibres with applicators, e.g. rolls
C03C 25/22 ... Depositing from the vapour phase
C03C 25/223 .... {by chemical vapour deposition or pyrolysis}
C03C 25/226 .... {by sputtering}

NOTE

In groups C03C 25/24 to C03C 25/40, organic coating compositions also cover mixtures of organic and inorganic compounds. A coating composition which cannot be completely classified in a single one of groups C03C 25/24 to C03C 25/40 should be classified in each relevant group, in accordance with the following rules: - Compositions containing only one macromolecular constituent and one or more conventional inorganic or non-macromolecular compounds, e.g. acids, solvents, are classified according to the macromolecular constituent only. - Compositions containing two or more macromolecular constituents and further conventional inorganic or non-macromolecular compounds are classified according to the macromolecular constituent present in the highest proportion. If, however, the other macromolecular constituents represent invention information, classification is also made for these constituents. - Compositions containing macromolecular constituents present in comparable proportions are classified according to these constituents. - If non-macromolecular compounds in the composition also represent invention information, C03C 25/38, for specific solvents, fillers, dyes or pigments, surfactants, biocides or the like in C03C 25/24 or subgroups.

C03C 25/24 .. Coatings containing organic materials
C03C 25/243 ... {Oils, waxes, fats or derivatives thereof}
C03C 25/246 ... {Non-macromolecular compounds not covered by C03C 25/243}

C03C 25/26 . . . Macromolecular compounds or prepolymers, {e.g. sizing compositions}

C03C 25/28 . . . . obtained by reactions involving only carbon-to-carbon unsaturated bonds

C03C 25/285 . . . . . {Acrylic resins}

C03C 25/30 . . . . . Polyolefins

C03C 25/305 . . . . . {Polyfluoro olefins}

C03C 25/32 . . . . obtained otherwise than by reactions involving only carbon-to-carbon unsaturated bonds

C03C 25/321 . . . . . {Starch or starch derivatives}

C03C 25/323 . . . . . {Esters or alkyd resins}

C03C 25/325 . . . . . {Polycarbonates}

C03C 25/326 . . . . . {Polyureas or polyurethanes}

C03C 25/328 . . . . . {Polyamides}

C03C 25/34 . . . . . Condensation polymers of aldehydes, e.g. with phenol, ureas, melamines, amides or amines

C03C 25/36 . . . . . Epoxy resins

C03C 25/38 . . . Organo-metal compounds

C03C 25/40 . . . Organo-silicon compounds

C03C 25/42 . . Coatings containing inorganic materials

C03C 25/44 . . . Carbon, e.g. graphite

C03C 25/46 . . . Metals

C03C 25/48 . . with two or more coatings having different compositions {(C03C 25/104 take s precedence)}

NOTE

If one or more of the individual coatings are of interest, for each of these coatings classification is also made in one or more of groups C03C 25/24 to C03C 25/46, in accordance with the note before group C03C 25/24.

C03C 25/50 . . . Coatings containing organic materials only

C03C 25/52 . . . Coatings containing inorganic materials only

C03C 25/54 . . . Combinations of one or more coatings containing organic materials only with one or more coatings containing inorganic materials only

C03C 25/60 . by diffusing ions or metals in the surface

C03C 25/601 . . {in the liquid phase, e.g. using molten salts or solutions}

C03C 25/602 . . . {to perform ion-exchange between alkali ions (C03C 25/605 takes precedence)}

C03C 25/603 . . . . {under application of an electrical potential difference}

C03C 25/605 . . . {to introduce in the glass such metals or metallic ions as Ag or Cu}

C03C 25/606 . . . {to perform an exchange of the type Xn+ --->nH+}

C03C 25/607 . . {in the gaseous phase}

C03C 25/608 . . {in the solid phase, e.g. using pastes, powders}

C03C 25/62 . by application of electric or wave energy or particle radiation, or by ion implantation (for drying or dehydration C03C 25/64)

C03C 25/6206 . . {Electromagnetic waves}

C03C 25/6213 . . . {Infra-red}
C03C 25/622 . . . {Visible light}
C03C 25/6226 . . . {Ultra-violet}
C03C 25/6233 . . . {Laser}
C03C 25/624 . . . {X-rays}
C03C 25/6246 . . . {Gamma-rays}
C03C 25/6253 . . . {Microwaves}
C03C 25/626 . . {Particle radiation or ion implantation}
C03C 25/6266 . . . {Electrons, protons or alpha-particles}
C03C 25/6273 . . . {Neutrons}
C03C 25/628 . . . {Atoms}
C03C 25/6286 . . . {Ion implantation}
C03C 25/6293 . . {Plasma or corona discharge}

C03C 25/64 . Drying; Dehydration; Dehydroxylation

C03C 25/66 . Chemical treatment, e.g. leaching, acid alkali treatment (dehydroxylation C03C 25/46)
C03C 25/68 . . by etching

C03C 25/70 . Cleaning, e.g. for reuse ({C03C 25/002,}C03C 25/62 and C03C 25/66 take precedence)

Joining glass to glass or to other materials (fusion seal compositions C03C 8/24)

NOTE

Layered products classified in groups C03C 27/00 or C03C 29/00 are also classified in subclass B32B.

C03C 27/00 **Joining pieces of glass to pieces of other inorganic material; Joining glass to glass other than by fusing** (C03C 17/00 takes precedence; layered structures comprising at least one glass sheet B32B 17/00; wired glass C03B; joining glass to ceramics C04)

C03C 27/005 . {with compositions containing more than 50% lead oxide by weight}

C03C 27/02 . by fusing glass directly to metal

C03C 27/04 . Joining glass to metal by means of an interlayer
C03C 27/042 . . {consisting of a combination of materials selected from glass, glass-ceramic or ceramic material with metals, metal oxides or metal salts}
C03C 27/044 . . . {of glass, glass-ceramic or ceramic material only}
C03C 27/046 . . . {of metals, metal oxides or metal salts only}
C03C 27/048 . . {consisting of an adhesive specially adapted for that purpose}

C03C 27/06 . Joining glass to glass by processes other than fusing (fusing C03B 23/20; units for use as elements for closing wall or like openings and comprising two or more parallel glass panes in spaced relationship, the panes being permanently secured together

E06B 3/66)

C03C 27/08 . . with the aid of intervening metal

C03C 27/10 . . with the aid of adhesive specially adapted for that purpose

C03C 29/00 Joining metals with the aid of glass

C03C 2201/00 Glass compositions

C03C 2201/02 . Pure silica glass, e.g. pure fused quartz

C03C 2201/06 . Doped silica-based glasses

C03C 2201/08 . . containing boron or halide

C03C 2201/10 . . . containing boron (C03C 2201/14 takes precedence)

C03C 2201/11 . . . containing chlorine

C03C 2201/12 . . . containing fluorine (C03C 2201/14 takes precedence)

C03C 2201/14 . . . containing boron and fluorine

C03C 2201/20 . . containing non-metals other than boron or halide

C03C 2201/21 . . . containing molecular hydrogen

C03C 2201/22 . . . containing deuterium

C03C 2201/23 . . . containing hydroxyl groups

C03C 2201/24 . . . containing nitrogen, e.g. silicon oxy-nitride glasses

C03C 2201/26 . . . containing carbon

C03C 2201/28 . . . containing phosphorus

C03C 2201/30 . . containing metals

C03C 2201/31 . . . containing germanium

C03C 2201/32 . . . containing aluminium (C03C 2201/36 takes precedence)

C03C 2201/34 . . . containing rare earth metals (C03C 2201/36 takes precedence)

C03C 2201/3405 . . . . Scandium

C03C 2201/3411 . . . . Yttrium

C03C 2201/3417 . . . . Lanthanum

C03C 2201/3423 . . . . Cerium

C03C 2201/3429 . . . . Praseodymium

C03C 2201/3435 . . . . Neodymium

C03C 2201/3441 . . . . Samarium

C03C 2201/3447 . . . . Europium

C03C 2201/3452 . . . . Gadolinium

C03C 2201/3458 . . . . Terbium

C03C 2201/3464 . . . . Dysprosium

C03C 2201/347 . . . . Holmium

C03C 2201/3476 . . . . Erbium

C03C 2201/3482 .... Thulium
C03C 2201/3488 .... Ytterbium
C03C 2201/3494 .... Lutetium
C03C 2201/36 .... containing rare earth metals and aluminium, e.g. Er-Al co-doped
C03C 2201/40 ... containing transition metals other than rare earth metals, e.g. Zr, Nb, Ta or Zn
C03C 2201/42 .... containing titanium
C03C 2201/50 ... containing alkali metals
C03C 2201/54 ... containing beryllium, magnesium or alkaline earth metals
C03C 2201/58 ... containing metals in non-oxide form, e.g. CdSe

C03C 2201/60 . containing organic material

C03C 2201/80 . containing bubbles or microbubbles, e.g. opaque quartz glass

C03C 2203/00 Production processes

C03C 2203/10 . Melting processes

C03C 2203/20 . Wet processes, e.g. sol-gel process
C03C 2203/22 .. using colloidal silica sols
C03C 2203/24 .. using alkali silicate solutions
C03C 2203/26 .. using alkoxides
C03C 2203/27 ... the alkoxides containing other organic groups, e.g. alkyl groups
C03C 2203/28 .... functional groups, e.g. vinyl, glycidyl
C03C 2203/30 .. Additives
C03C 2203/32 ... Catalysts
C03C 2203/34 .. adding silica powder
C03C 2203/36 .. Gel impregnation

C03C 2203/40 . Gas-phase processes
C03C 2203/42 .. using silicon halides as starting materials
C03C 2203/44 ... chlorine containing
C03C 2203/46 ... fluorine containing

C03C 2203/50 . After-treatment
C03C 2203/52 .. Heat-treatment
C03C 2203/54 ... in a dopant containing atmosphere

C03C 2204/00 Glasses, glazes or enamels with special properties

C03C 2204/02 . Antibacterial glass, glaze or enamel

C03C 2204/04 . Opaque glass, glaze or enamel

C03C 2204/06 . . opacified by gas

C03C 2204/08 . Glass having a rough surface

C03C 2205/00 Compositions applicable for the manufacture of vitreous enamels or glazes

C03C 2205/02 . for opaque enamels or glazes

C03C 2205/04 . for self-cleaning enamels or glazes

C03C 2205/06 . for dental use

C03C 2207/00 Compositions specially applicable for the manufacture of vitreous enamels

C03C 2207/02 . containing ingredients for securing a good bond between the vitrified enamel and the metal

C03C 2207/04 . for steel

C03C 2207/06 . for cast iron

C03C 2207/08 . for light metals

C03C 2207/10 . for copper, silver or gold

C03C 2209/00 Compositions specially applicable for the manufacture of vitreous glazes

C03C 2209/02 . to produce non-uniformly couloured glazes

C03C 2213/00 Glass fibres or filaments

C03C 2213/02 . Biodegradable glass fibres

C03C 2213/04 . Dual fibres

C03C 2214/00 Nature of the non-vitreous component

C03C 2214/02 . Fibres; Filaments; Yarns; Felts; Woven material
C03C 2214/03 . . surface treated, e.g. coated

C03C 2214/04 . Particles; Flakes
C03C 2214/05 . . surface treated, e.g. coated

C03C 2214/06 . Whiskers ss
C03C 2214/07 . . surface treated, e.g. coated

C03C 2214/08 . Metals

C03C 2214/10 . Superconducting materials

C03C 2214/12 . Polymers

C03C 2214/14 . Waste material, e.g. to be disposed of

C03C 2214/16 . Microcrystallites, e.g. of optically or electrically active material

C03C 2214/17 . in molecular form (for molecular composites)

C03C 2214/20 . Glass-ceramics matrix

C03C 2214/30 . Methods of making the composites

C03C 2214/32 . comprising a sol-gel process

C03C 2214/34 . comprising an impregnation by molten glass step

C03C 2217/00 Coatings on glass

C03C 2217/20 . Materials for coating a single layer on glass
C03C 2217/21 . . Oxides
C03C 2217/211 . . . SnO_2
C03C 2217/212 . . . TiO_2
C03C 2217/213 . . . SiO_2
C03C 2217/214 . . . Al_2O_3
C03C 2217/215 . . . In_2O_3
C03C 2217/216 . . . ZnO
C03C 2217/217 . . . FeOx, CoOx, NiOx
C03C 2217/218 . . . V_2O_5, Nb_2O_5, Ta_2O_5
C03C 2217/219 . . . CrOx, MoOx, WOx
C03C 2217/22 . . . ZrO_2
C03C 2217/228 . . . Other specific oxides
C03C 2217/229 . . . Non-specific enumeration
C03C 2217/23 . . . Mixtures
C03C 2217/231 . . . . In_2O_3/SnO_2
C03C 2217/232 . . . . CdO/SnO_2
C03C 2217/24 . . . Doped oxides
C03C 2217/241 . . . . with halides
C03C 2217/242 . . . . with rare earth metals
C03C 2217/243 . . . . with S, Se, Te
C03C 2217/244 . . . . with Sb
C03C 2217/25 . . Metals
C03C 2217/251 . . . Al, Cu, Mg or noble metals

C03C 2217/252 .... Al
C03C 2217/253 .... Cu
C03C 2217/254 .... Noble metals
C03C 2217/255 ..... Au
C03C 2217/256 ..... Ag
C03C 2217/257 ... Refractory metals
C03C 2217/258 .... Ti, Zr, Hf
C03C 2217/259 .... V, Nb, Ta
C03C 2217/26 .... Cr, Mo, W
C03C 2217/261 ... Iron-group metals, i.e. Fe, Co or Ni
C03C 2217/262 ... Light metals other than Al
C03C 2217/263 ... Metals other than noble metals, Cu or Hg

NOTE

This code is only to be used in combination with C03C classification symbols having the +IDT notation.

C03C 2217/268 ... Other specific metals
C03C 2217/269 ... Non-specific enumeration
C03C 2217/27 ... Mixtures of metals, alloys
C03C 2217/28 .. Other inorganic materials
C03C 2217/281 ... Nitrides
C03C 2217/282 ... Carbides, silicides
C03C 2217/283 ... Borides, phosphides
C03C 2217/284 ... Halides
C03C 2217/285 .... Fluorides
C03C 2217/286 .... Chlorides
C03C 2217/287 ... Chalcogenides
C03C 2217/288 .... Sulfides
C03C 2217/289 .... Selenides, tellurides
C03C 2217/29 .. Mixtures

C03C 2217/40 . Coatings comprising at least one inhomogeneous layer
C03C 2217/42 .. consisting of particles only
C03C 2217/425 .. consisting of a porous layer
C03C 2217/43 .. consisting of a dispersed phase in a continuous phase
C03C 2217/44 ... characterized by the composition of the continuous phase
C03C 2217/445 .... Organic continuous phases
C03C 2217/45 .... Inorganic continuous phases
C03C 2217/452 ..... Glass
C03C 2217/46 ... characterized by the dispersed phase
C03C 2217/465 .... having a specific shape
C03C 2217/47 .... consisting of a specific material

C03C 2217/475 ..... Inorganic materials
C03C 2217/476 ..... Tin oxide or doped tin oxide
C03C 2217/477 ..... Titanium oxide
C03C 2217/478 ..... Silica
C03C 2217/479 ..... Metals
C03C 2217/48 .... having a specific function
C03C 2217/485 ..... Pigments

C03C 2217/70 . Properties of coatings
C03C 2217/71 .. Photocatalytic coatings
C03C 2217/72 .. Decorative coatings
C03C 2217/73 .. Anti-reflective coatings with specific characteristics
C03C 2217/732 ... made of a single layer
C03C 2217/734 ... comprising an alternation of high and low refractive indexes
C03C 2217/74 .. UV-absorbing coatings
C03C 2217/75 .. Hydrophilic and oleophilic coatings
C03C 2217/76 .. Hydrophobic and oleophobic coatings
C03C 2217/77 .. Coatings having a rough surface
C03C 2217/775 ... to provide anti-slip characteristics
C03C 2217/78 .. Coatings specially designed to be durable, e.g. scratch-resistant

C03C 2217/90 . Other aspects of coatings
C03C 2217/91 .. Coatings containing at least one layer having a composition gradient through its thickness
C03C 2217/92 .. Coating of crystal glass
C03C 2217/93 .. Coatings containing a reinforcement comprising fibers or grids
C03C 2217/94 .. Transparent conductive oxide layers [TCO] being part of a multilayer coating
C03C 2217/944 ... Layers comprising zinc oxide
C03C 2217/948 ... Layers comprising indium tin oxide [ITO]

C03C 2218/00 Methods for coating glass

C03C 2218/10 . Deposition methods
C03C 2218/11 .. from solutions or suspensions
C03C 2218/111 ... by dipping, immersion
C03C 2218/112 ... by spraying
C03C 2218/113 ... by sol-gel processes
C03C 2218/114 ... by brushing, pouring or doctorblading
C03C 2218/115 ... electro-enhanced deposition
C03C 2218/116 ... by spin-coating, centrifugation
C03C 2218/117 ... by ultrasonic methods
C03C 2218/118 ... by roller-coating
C03C 2218/119 ... by printing

C03C 2218/13 . . from melts
C03C 2218/15 . . from the vapour phase
C03C 2218/151 . . . by vacuum evaporation
C03C 2218/152 . . . by cvd
C03C 2218/1525 . . . . by atmospheric CVD
C03C 2218/153 . . . . by plasma-enhanced cvd
C03C 2218/154 . . . by sputtering
C03C 2218/155 . . . . by reactive sputtering
C03C 2218/156 . . . . by magnetron sputtering
C03C 2218/17 . . from a solid phase

C03C 2218/30 . Aspects of methods for coating glass not covered above
C03C 2218/31 . . Pre-treatment
C03C 2218/32 . . After-treatment
C03C 2218/322 . . . Oxidation
C03C 2218/324 . . . De-oxidation
C03C 2218/326 . . . Nitriding
C03C 2218/328 . . . Partly or completely removing a coating
C03C 2218/33 . . . . by etching
C03C 2218/335 . . Reverse coating
C03C 2218/34 . . Masking
C03C 2218/345 . . Surface crystallisation
C03C 2218/35 . . Exuding
C03C 2218/355 . . Temporary coating
C03C 2218/36 . . Underside coating of a glass sheet
C03C 2218/365 . . Coating different sides of a glass substrate